KING COUNTY FLOOD CONTROL DISTRICT

King County

South Fork Snoqualmie Corridor Plan

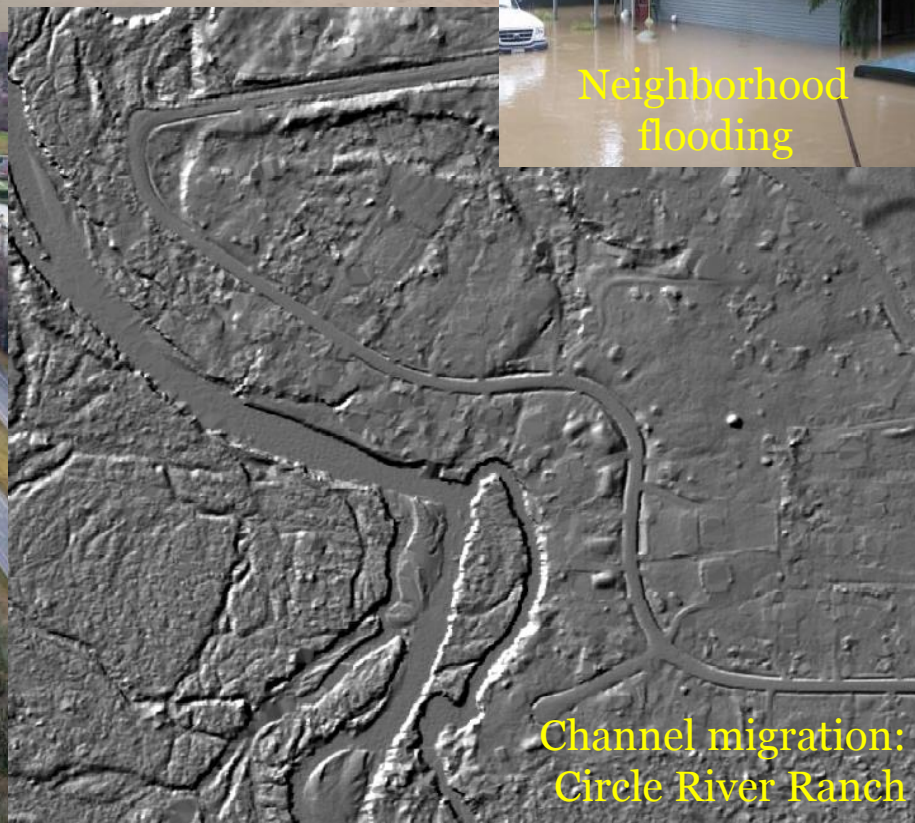
July 2015

Levee overtopping and seepage

Road flooding

Neighborhood flooding

Flooding near I-90: Potential for interstate closure

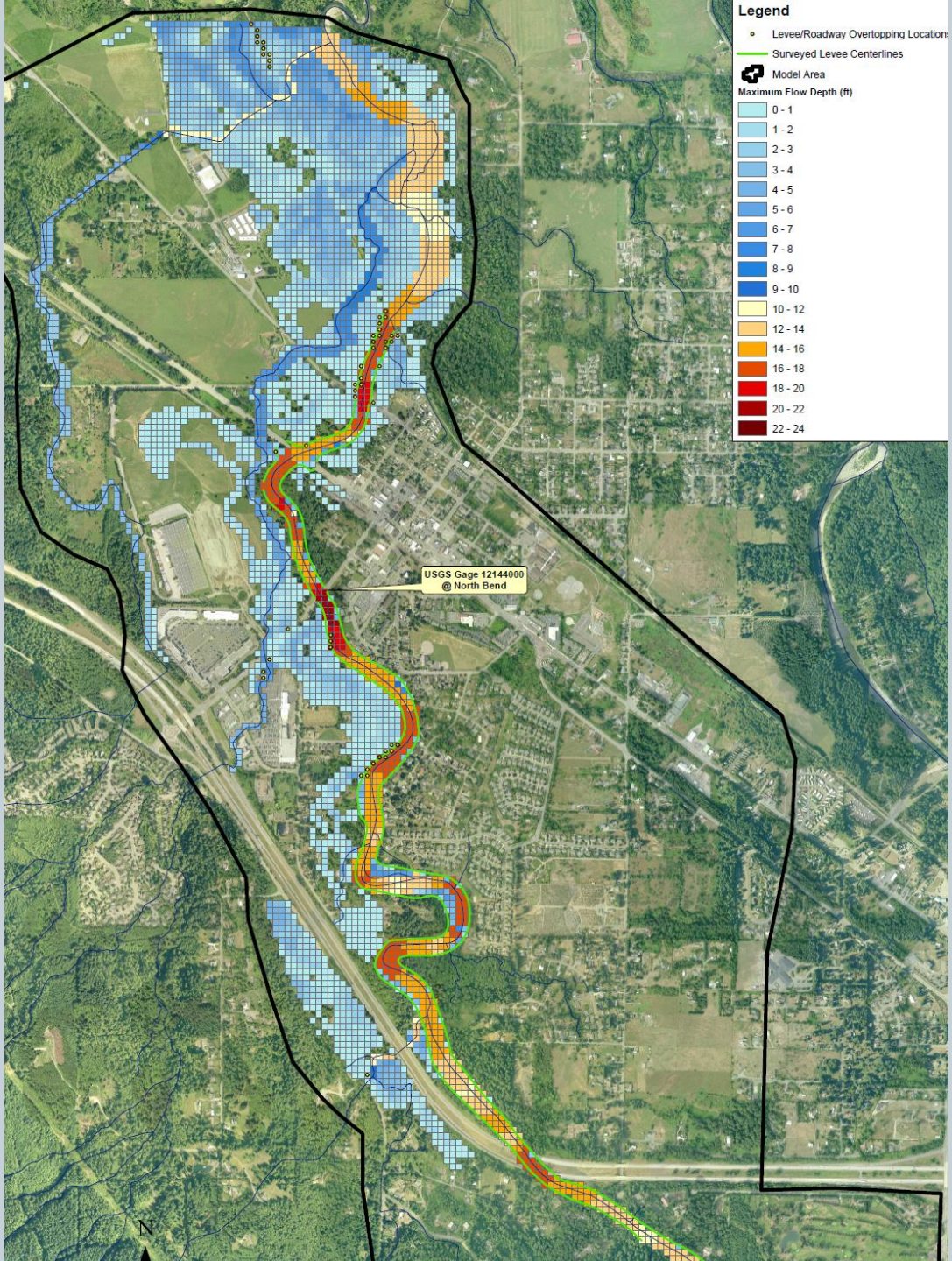


Channel migration: Circle River Ranch

Key Issues

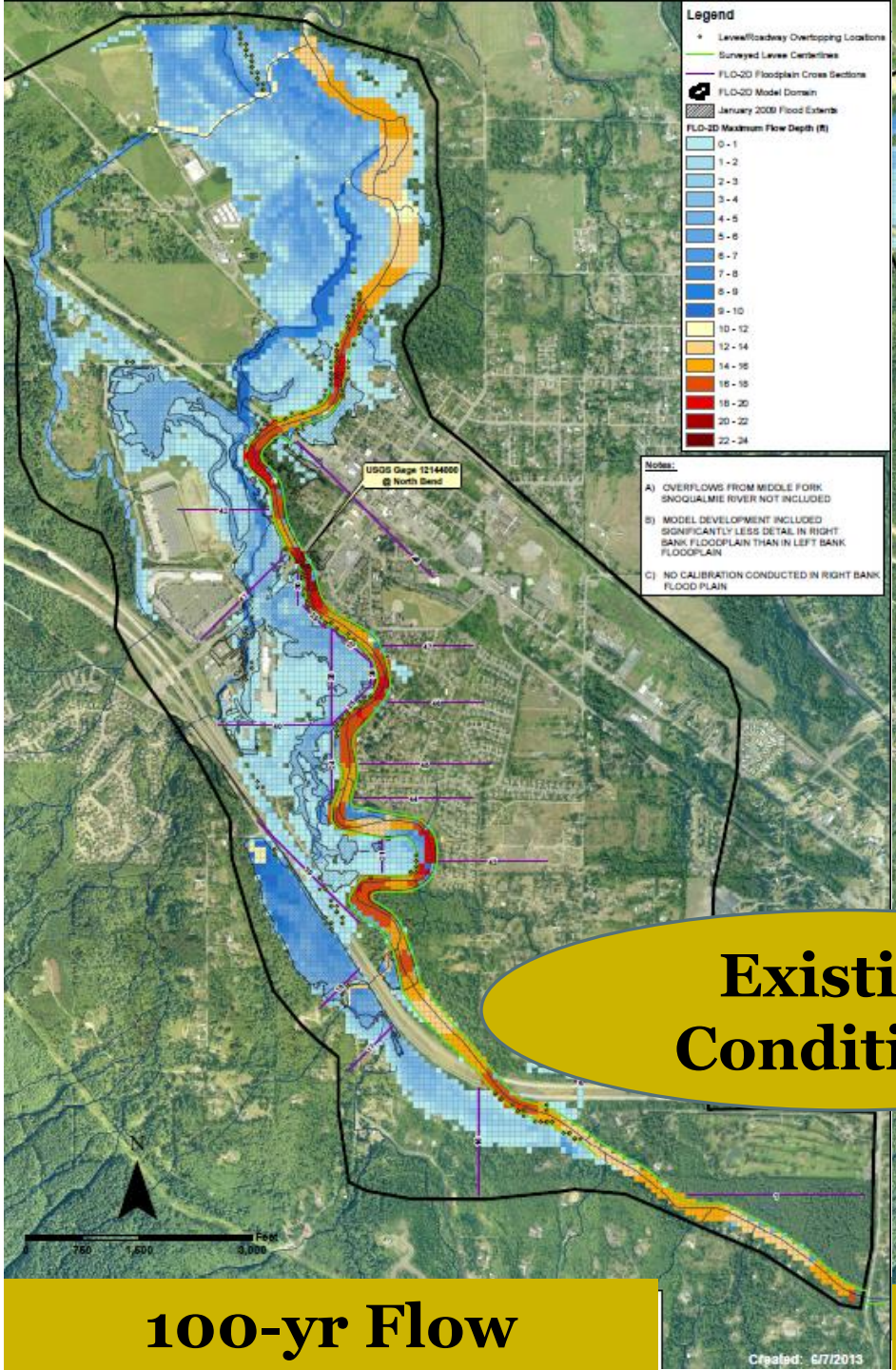
- 1960s levees overtop and have structural problems
- Different flood protection levels on left & right banks
- Potential for I-90 flooding
- Channel migration hazards in Circle River Ranch (30 structures)
- Gravel build up between levees
- Poor ecological conditions

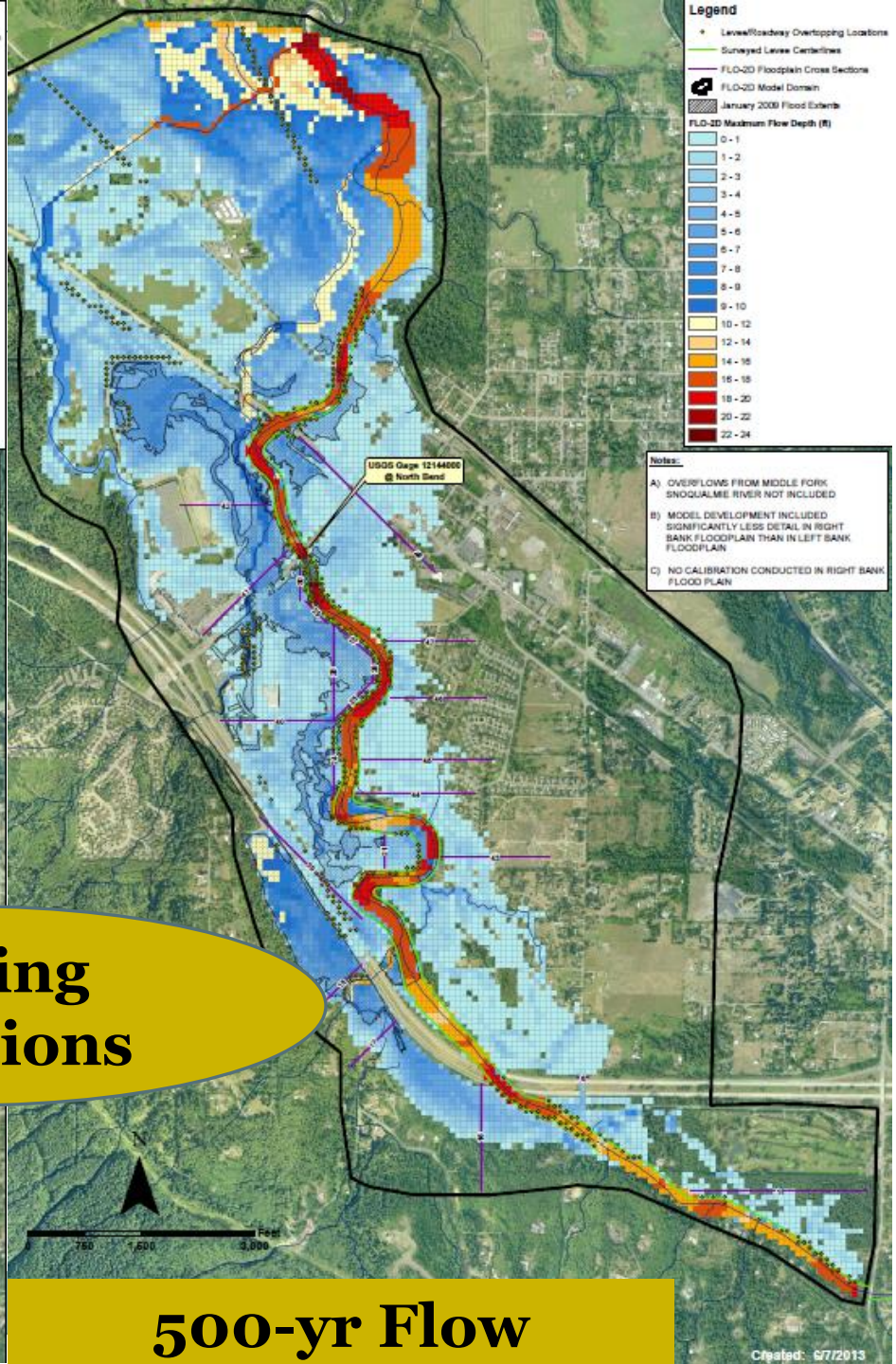
Flood Impacts	100-yr	500-yr
Flow (cfs)	15,650	19,120
Structures	144	778
AV ($million)	53.8	147.9
Roads (mi.)	5.4	14.8
Acres	368	778



November 2006 Flood Event

Hydraulic Model Calibration





Existing Conditions

100-yr Flow

500-yr Flow

Adopted Corridor Plan Goals

Goal 1: Reduce Risks

- 500 year flood protection if feasible
- Eliminate high and moderate geotechnical problems
- Mitigate channel migration risk over 50 years

Goal 2: Improve natural environment

- Improve instream aquatic habitat
- Improve riparian habitat

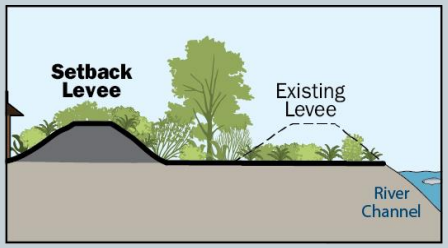
Goal 3: Reduce long-term costs

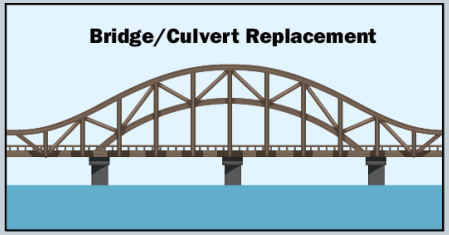
- Sustainable cost-effective solutions
- Reduce long-term maintenance & repair costs by 30%

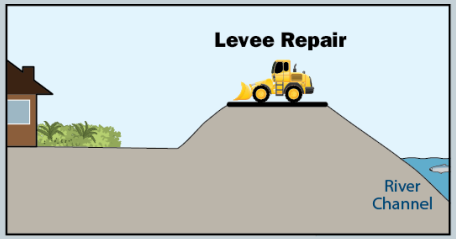
Goal 4: Incorporate stakeholder and community values

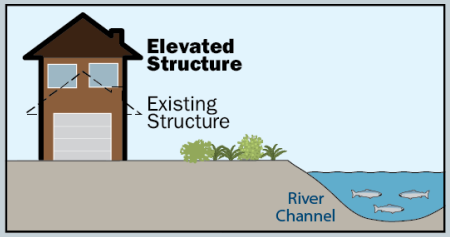
- Provide equitable outcomes
- Incorporate multiple objectives through involvement

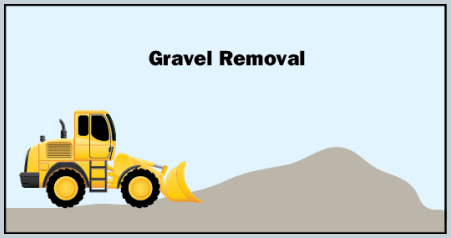
Adopted Tools

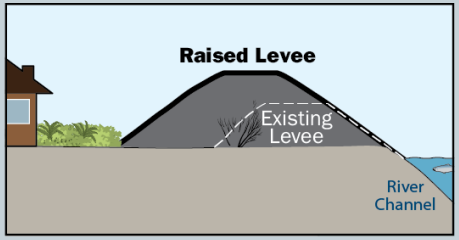


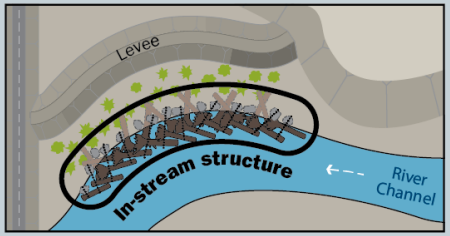


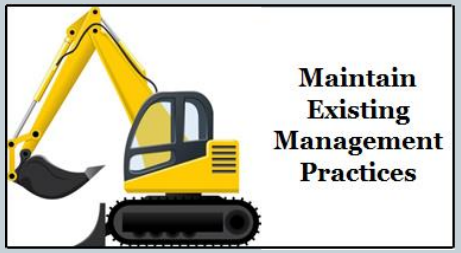




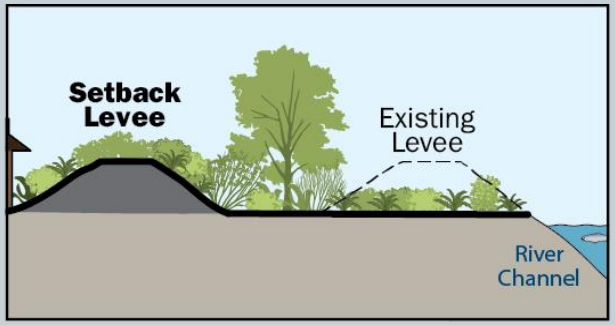


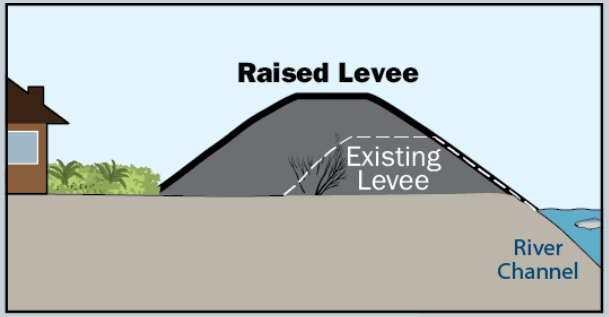






Adopted Corridor Approaches to Evaluate

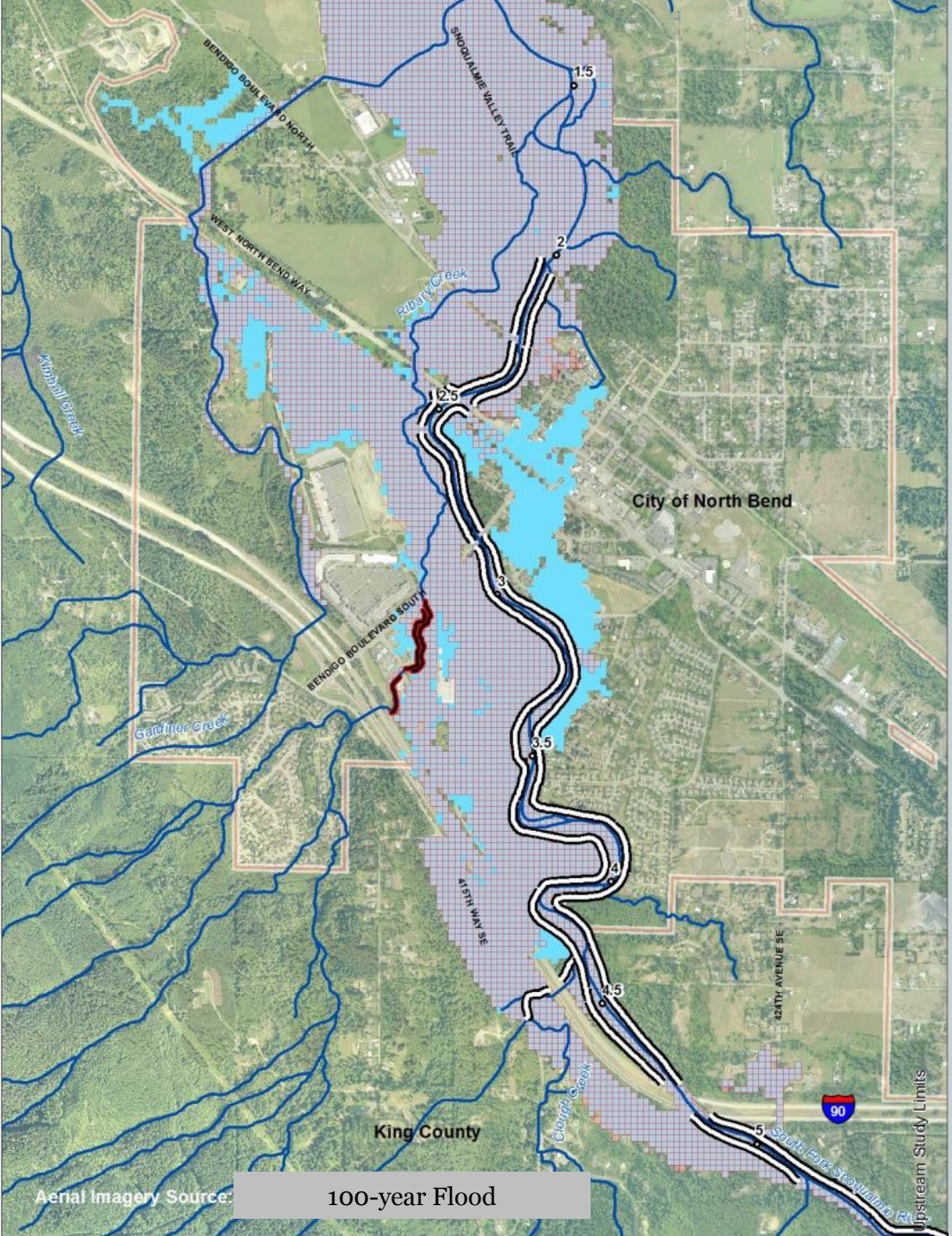




Evaluated each approach based on metrics derived from the adopted corridor goals

Conclusions:

- Each has advantages and drawbacks
- A hybrid approach can use the best features of each and best combination of tools at each site

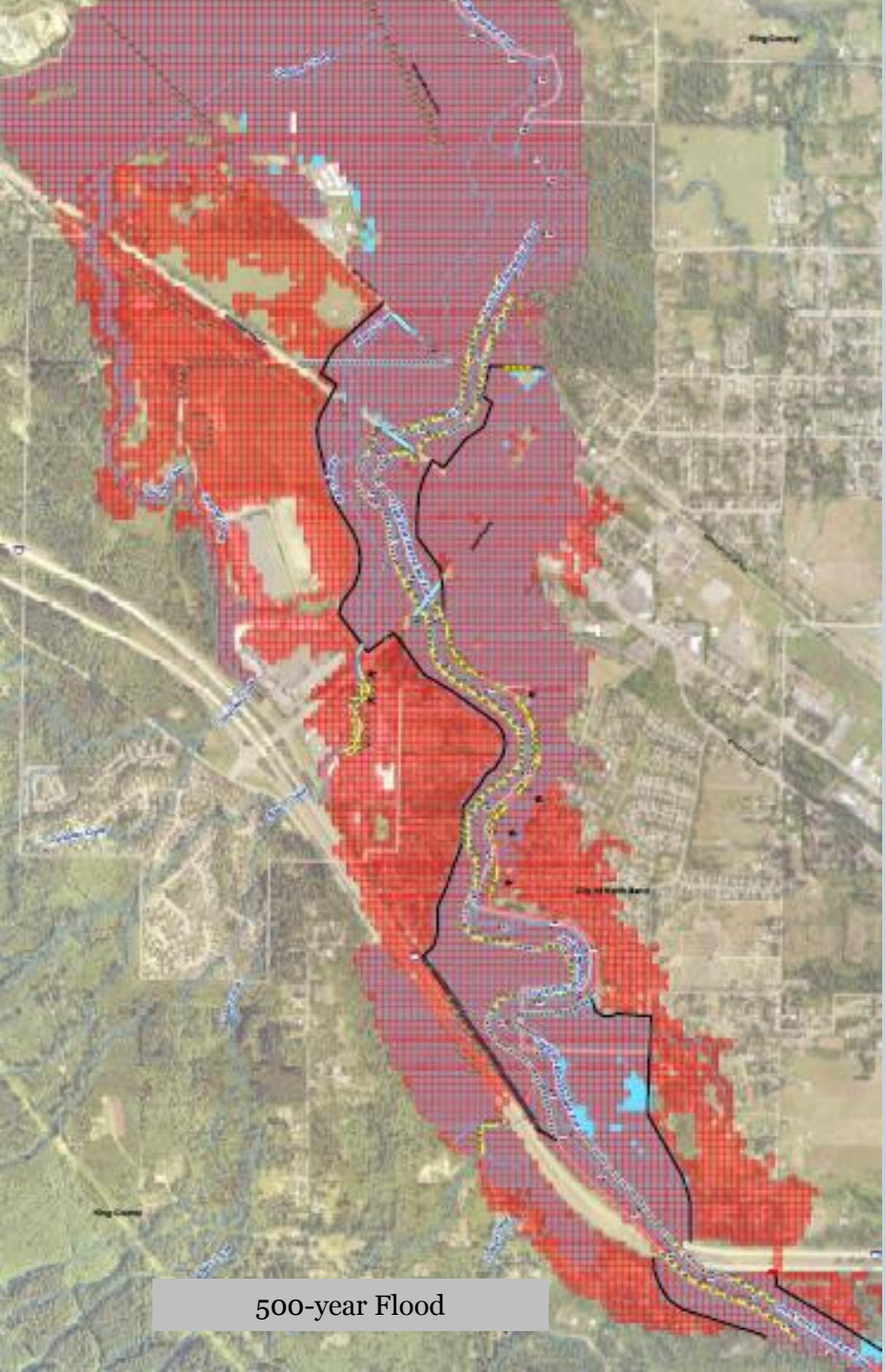


Maintain Existing Management Practices

Blue areas represent new areas of flooding over time

Hashed area represents areas that flood now

Red area represent areas no longer flooded

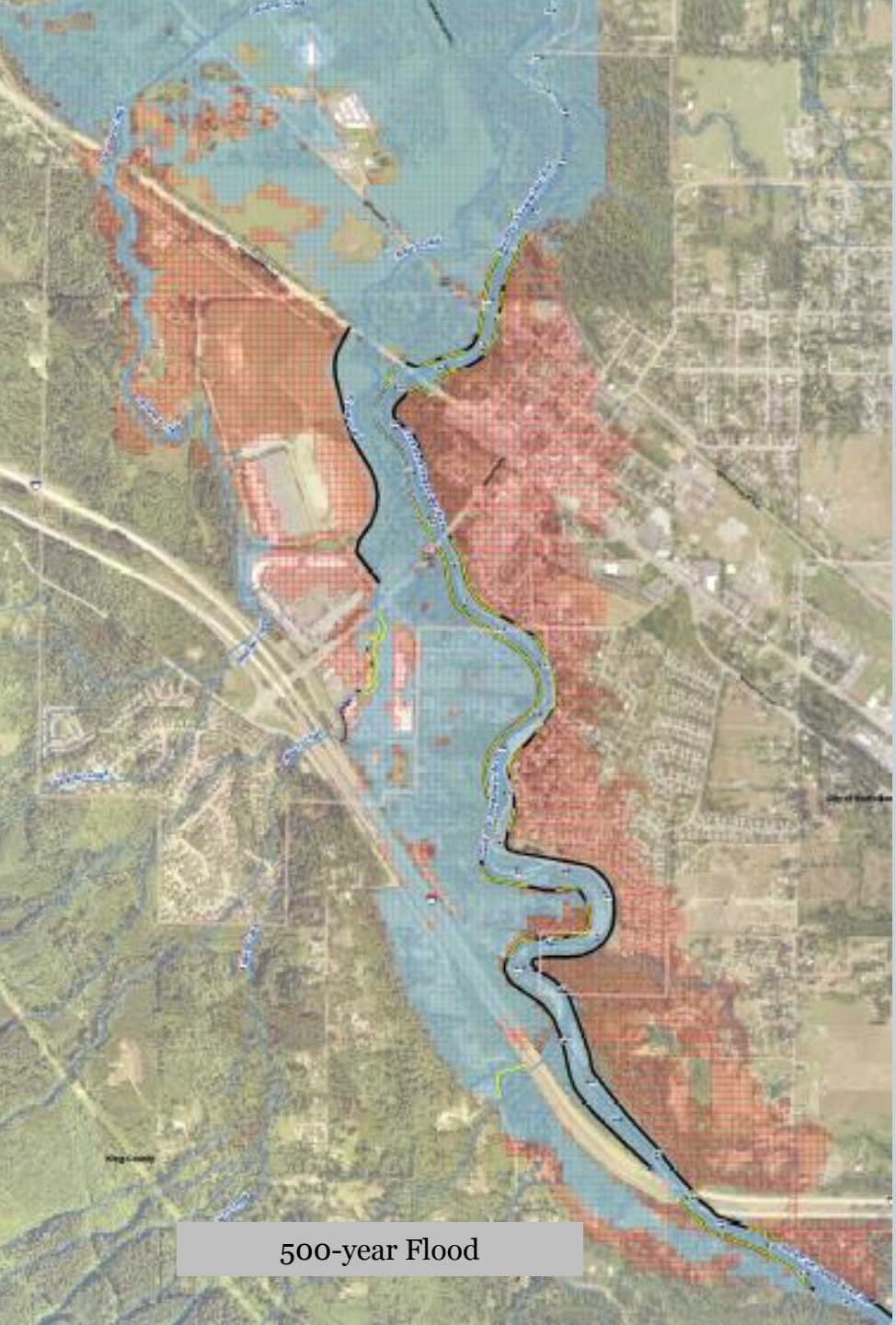


Levee Setback Approach

Blue areas represent new areas of flooding over time

Hashed area represents areas that flood now

Red area represent areas no longer flooded



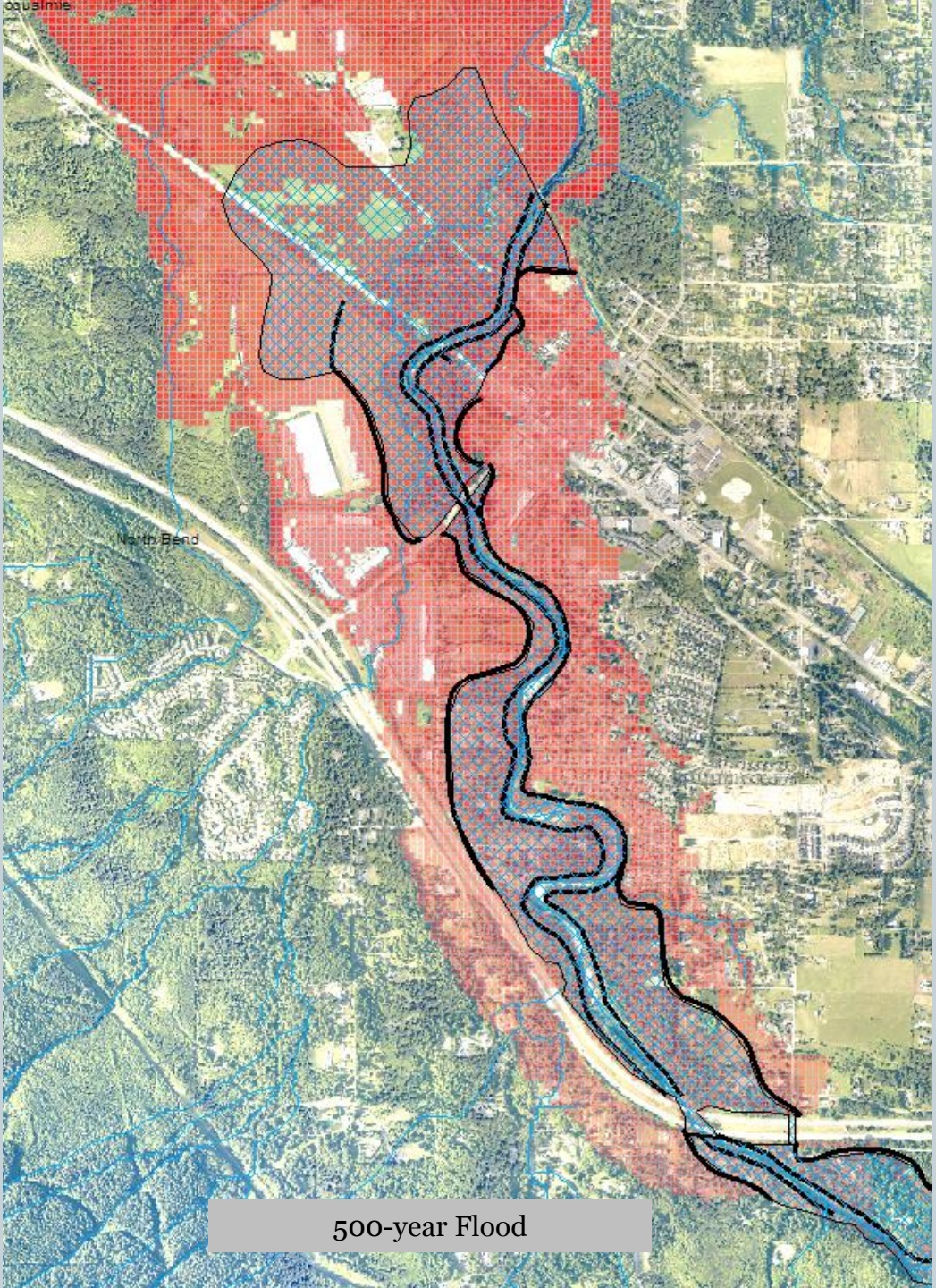
500-year Flood

Raise Levees In Place

Blue areas represent new areas of flooding over time

Hashed area represents areas that flood now

Red area represent areas no longer flooded



500-year Flood

Hybrid Approach

Blue areas represent new areas of flooding over time

Hashed area represents areas that flood now

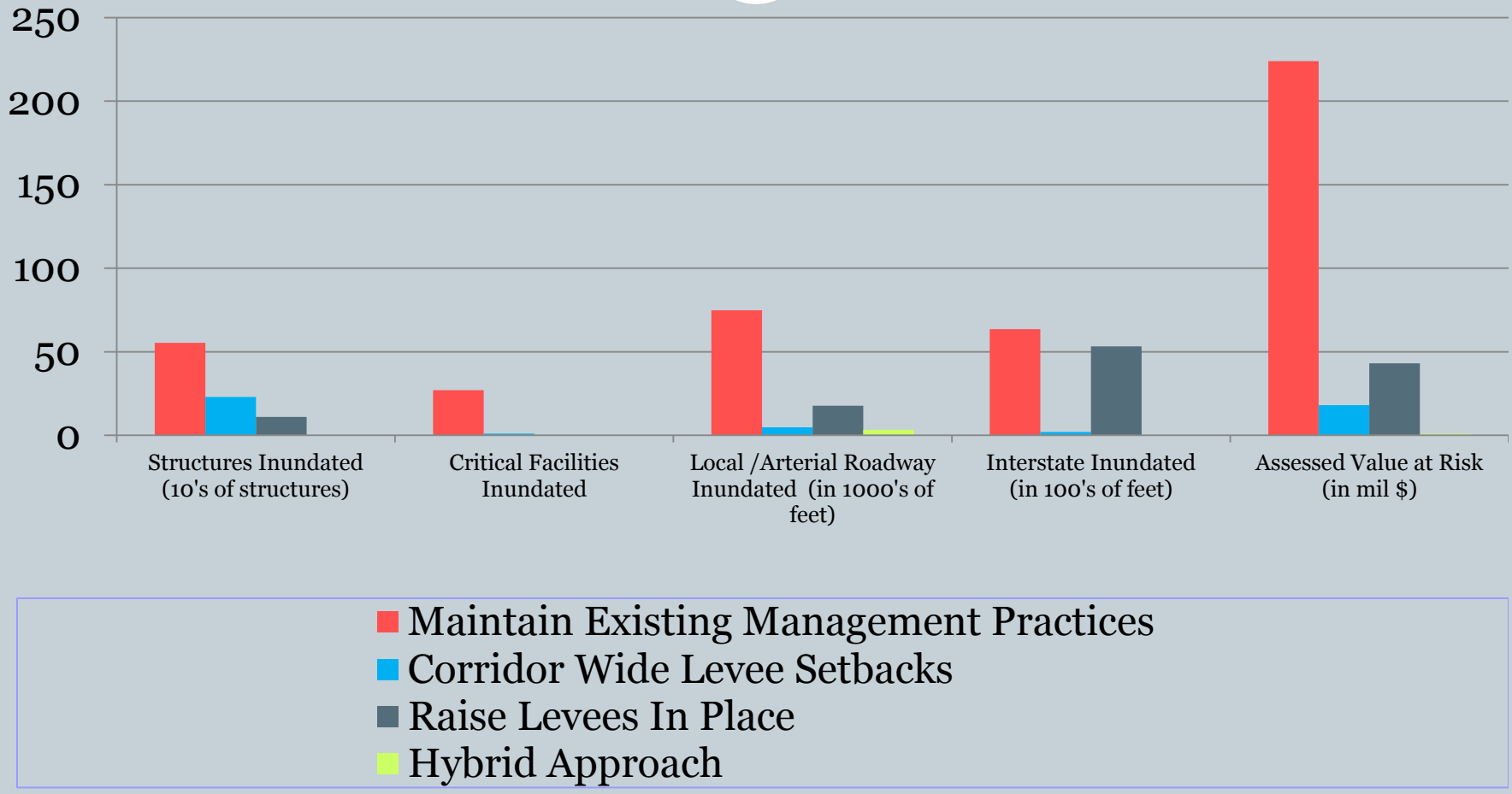
Red area represent areas no longer flooded

Comparing Approaches

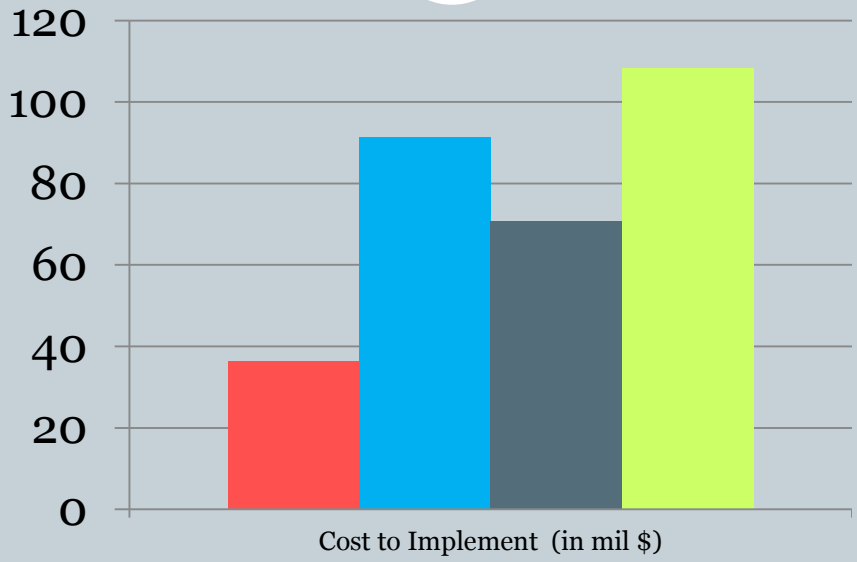
Evaluation Metrics

- Ability to reduce risks
  - Solve geotechnical problems
  - Solve hydraulic problems
  - Manage or accommodate sediment
- Ability to improve ecological conditions
  - Increases in floodplain connectivity
  - Increase in velocity refuges for fish
- Cost effectiveness
  - Implementation costs
  - Projected maintenance and repair costs
- Consistency with stakeholder interests
  - Multi-objective benefits
  - Limit downstream impacts
  - Gravel management
  - Effects on recreation/ trails access

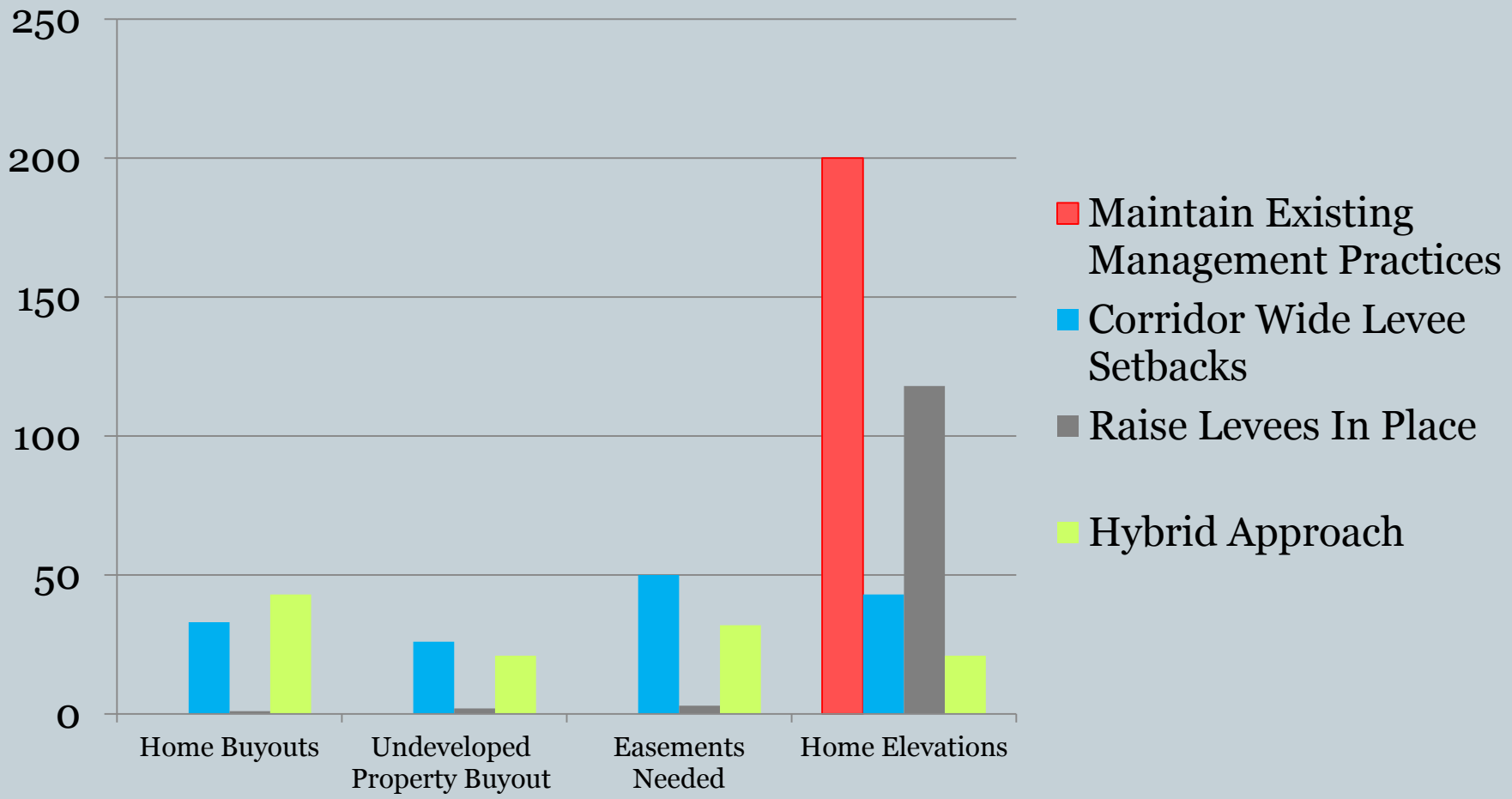
Comparison of Benefits



Comparison of Costs



Comparison of Property Impacts



Next Steps on Corridor Plan

Community input

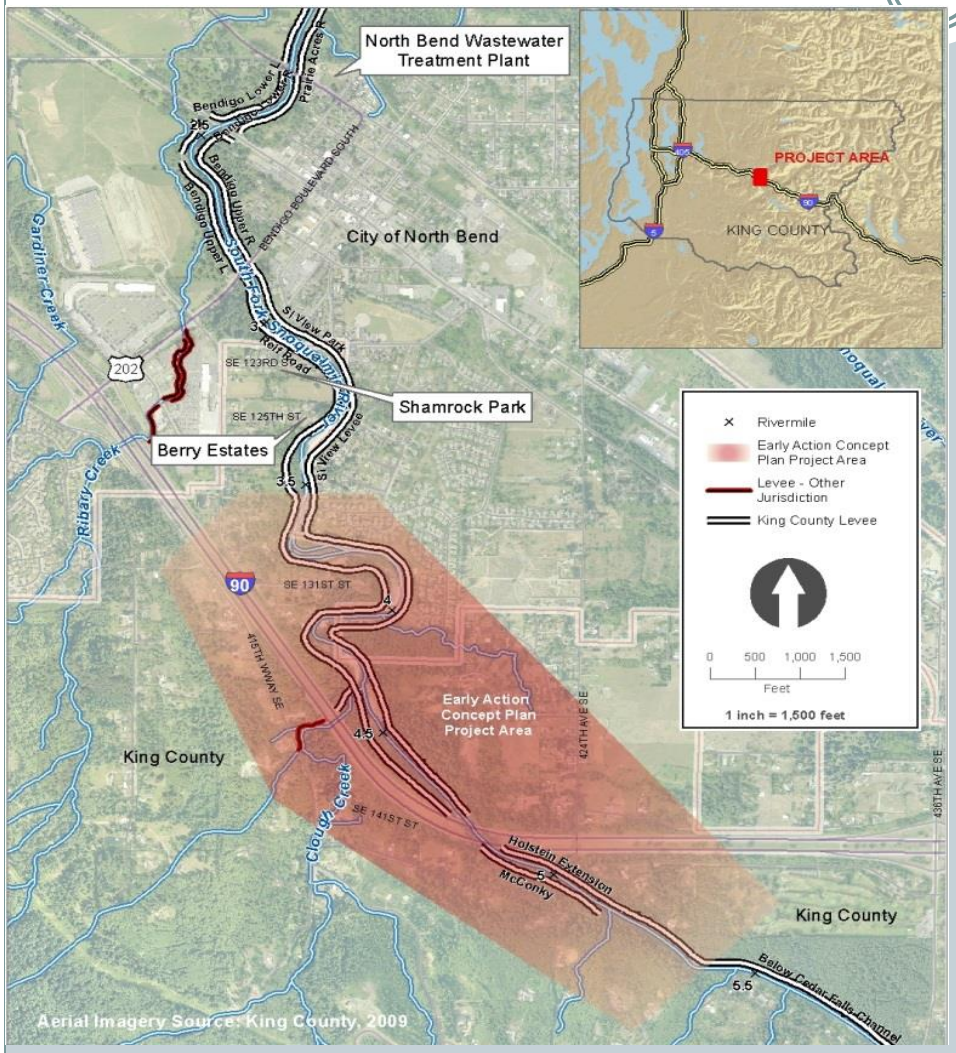
Executive Committee and Board decision on corridor approach

Finalize and approve corridor plan

- Flood Control District Approval (4th quarter 2015)
- County Council adoption (1st quarter 2016?)

I-90 Flood Risk Reduction (Early Action Project)

I-90 Flood Risk Reduction Project

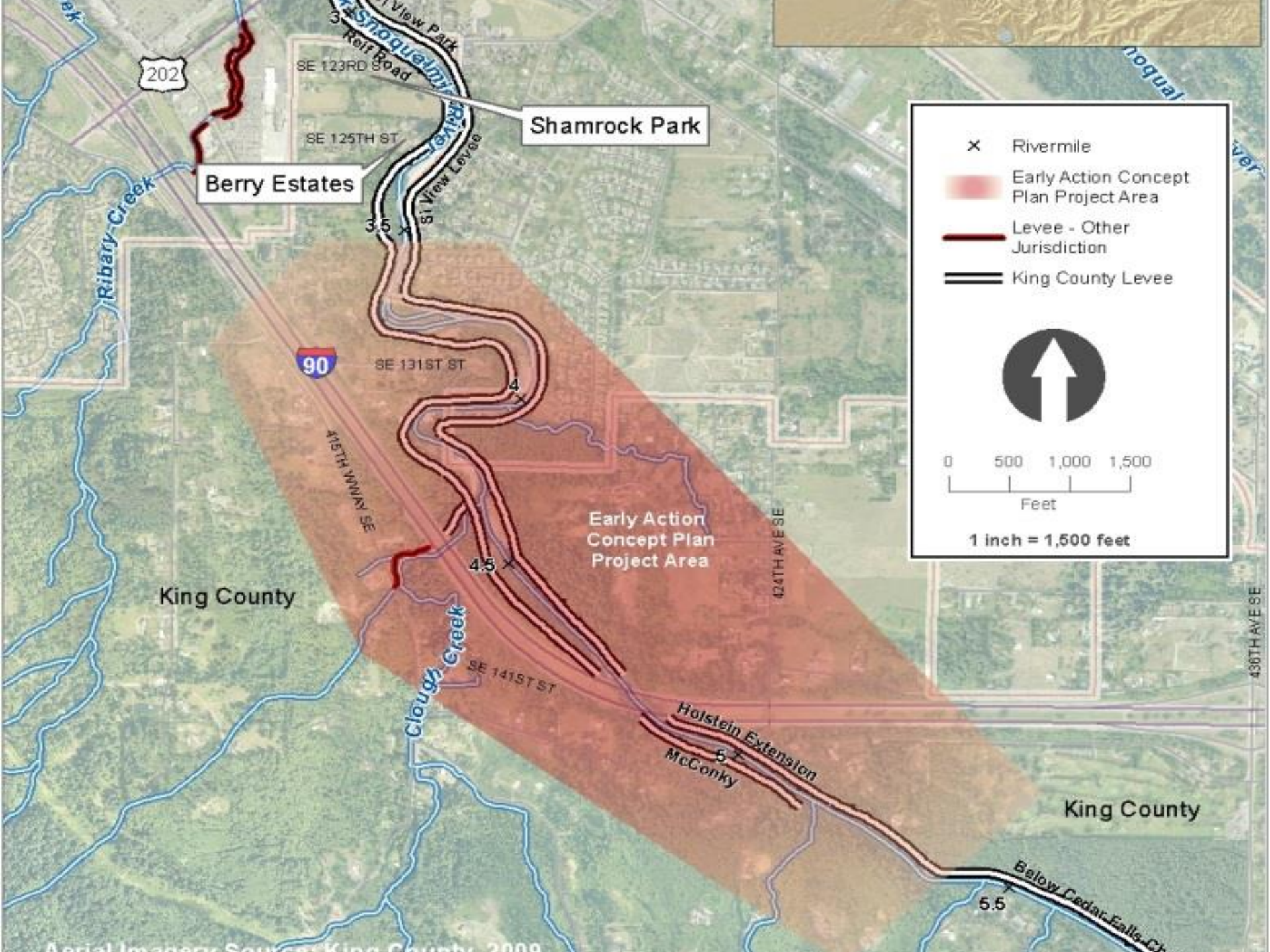


Predicted flood waters to overtop Interstate 90

Project initiated through Flood Control District Resolution 2013-14 with no scope definition

Scope has been refined by evaluating several concepts as precursor to alternatives analysis

Preliminary finding is Si View Levee Setback is likely a necessary core element of a successful alternative


Shamrock Park
Berry Estates
Rivermile
Early Action Concept Plan Project Area
Levee - Other Jurisdiction
King County Levee
0 500 1,000 1,500
Feet
1 inch = 1,500 feet
Early Action Concept Plan Project Area
King County
King County
Holstein Extension
McConky
Below Cedar Falls
Si View Levee
Ribary Creek
Clough Creek
SE 123RD ST
SE 125TH ST
SE 131ST ST
SE 141ST ST
415TH WWAY SE
424TH AVE SE
436TH AVE SE
202
90
3
3.5
4
4.5
5
5.5

Questions? Comments?